ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	
Streamlining the Commission's Rules and Regulations for Satellite Applications and Licensing Procedures	**IB Docket No. 95-117**

COMMENTS OF
MOTOROLA SATELLITE COMMUNICATIONS, INC.

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Dated: October 4, 1995

SUMMARY

Motorola Satellite Communications, Inc ("Motorola") supports the Commission's efforts to streamline its Part 25 satellite rules. Motorola has provided some additional comments and suggestions that it believes are consistent with the Commission's goals in this proceeding. In addition, Motorola urges the Commission to consider minor changes to its technical rules to reflect the differences between geostationary and nongeostationary systems

Motorola fully supports the Commission's proposal to eliminate the need to seek a waiver of Section 319(d) of the Communications Act before beginning construction of satellite systems. The existing requirement results in needless delay and postpones the day when the public will receive innovative new satellite services. The Commission should ensure, however, that applicants who initiate construction at their own risk have a minimally acceptable application on file. Otherwise, the Commission will be faced with more speculative proposals. As a matter of consistency, the Commission should consider liberalizing its experimental satellite policy to permit applicants to begin construction prior to grant and to authorize in-orbit experiments at the operator's own risk. Finally, Motorola sees no reason why the Commission should not eliminate the need for a construction permit for earth station complexes that are an integral part of these satellite systems.

Motorola urges the Commission to move cautiously in eliminating its developmental authority rules for satellites. This authority is distinguishable from experimental authority and is under the control of the staff responsible for all satellite operations.

Motorola can support the Commission's desire to eliminate the submission of financial, business and operational information that is not decisional. However, the staff must have enough information before it to make a decision as to whether an

applicant has a well thought out business plan and the means to carry out that plan to completion.

Motorola supports the Commission's proposal to create a generic Form 312 for earth station applications. The Commission should, however, consider extending the use of this form to applications for new satellite systems. The current method of cross-referencing Appendix B from a 1983 Order with Part 25 of the Rules to create a narrative application is confusing and unnecessary. The proposed Form 312 should be modified to permit applicants for new satellite systems to use the form as a means of filing minimally acceptable applications.

Motorola also supports the Commission's tentative decision to clarify its cut-off rules to indicate that filing deadlines will not begin (and end) until the Commission or staff issues explicit instructions. Motorola urges the Commission to clarify, however, that pending satellite applicants will not routinely be subjected to more than one cut-off period in which competing applications or petitions may be filed.

Motorola favors eliminating the need to seek prior Commission approval to make "minor" amendments to licensed earth stations, but suggests that this procedure should also be extended to minor amendments for licensed space stations.

Finally, Motorola proposes several minor changes to the Commission's technical rules to conform these rules to the realities of NGSO systems. Motorola suggests that the Commission adopt different power control limits for NGSO space stations, clarify its spurious emissions rules to account for digital modulation techniques and clarify that its antenna performance rules apply only to GSO operations.

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COMMENTS OF MOTOROLA SATELLITE COMMUNICATIONS, INC.

Motorola Satellite Communications, Inc. ("Motorola") hereby submits its initial comments in response to the Commission's Notice of Proposed Rulemaking ("NPRM") released August 11, 1995 in the above-captioned proceeding.[1/] Motorola supports the Commission's preliminary determination to streamline its satellite Rules to better reflect the changes in the satellite industry. For the most part, Motorola agrees with the Commission's proposals. Motorola also wishes to provide the Commission with some minor changes and clarifications to its technical rules that will better reflect the technical differences between both Mobile-Satellite Service ("MSS") and Fixed-Satellite Service ("FSS") providers and satellites in geostationary orbit ("GSO") and non-geostationary orbit ("NGSO" or "LEO"). With the proposals offered by the Commission and those presented by Motorola and others, Motorola believes that the Commission will have taken significant steps in relieving some of the unnecessary regulatory burdens and constraints of Part 25 of the Rules. This additional flexibility will allow for the more orderly processing of satellite system and earth station

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1/ Streamlining the Commission's Rules and Regulations for Satellite Application and Licensing Procedures, Notice of Proposed Rulemaking, FCC 95-117, released August 11, 1995.

applications, and for the MSS and FSS industries to respond better to market conditions, not outdated regulations. [2/]

Motorola's interest in this proceeding is two-fold. First, Motorola recently received a license from the Commission's International Bureau to construct, launch and operate the IRIDIUM® System in the 1.6 GHz MSS/RDSS band on a bi-directional basis.[3/] In addition, Motorola, through its Comm. Inc. affiliate, recently submitted an application to provide broadband GSO FSS in the 28/18 GHz bands.[4/] Motorola's specific comments and suggestions are discussed below.

I. THE COMMISSION SHOULD WAIVE THE CONSTRUCTION PERMIT REQUIREMENT OF SECTION 319(D) OF THE COMMUNICATIONS ACT FOR SATELLITE SYSTEMS AND EARTH STATIONS

A. Waiver for Satellite Systems

Motorola fully supports the Commission's proposal to eliminate the requirement for prior construction authorization before applicants can begin construction on their proposed satellite networks. The need to seek prior construction authorization, or a waiver under Section 319(d) of the Communications Act, is no more than a formality today and an impediment to necessary long term planning of satellite systems. As the Commission well knows, satellite applications often remain on file for years in order to resolve international or domestic allocation and assignment issues. In the interim, applicants should have the option of starting construction at their own risk. This "head start" could shave years from the time when the public begins to receive

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[2/] Motorola also looks forward to participating in the Commission's comprehensive review of its satellite licensing policies which was announced on September 20, 1995. International Bureau to Review Satellite Licensing Policies: Industry Dialogue Sought, Public Notice, Report No. IN 95-25.

[3/] Motorola Satellite Communications, Order and Authorization, 10 FCC Rcd 2268 (1995).

[4/] Comm, Inc.'s GSO-FSS application was filed with the Commission on September 29, 1995.

new satellite services. In drafting Section 319(d), Congress expressly granted the Commission authority to waive the construction permit requirement for a "class of stations," and the Commission should exercise that authority for satellite space stations.[5/]

The Commission, however, should retain a means of ensuring that an applicant has a minimally acceptable application on file prior to starting construction. Otherwise, the Commission will be faced with truly speculative construction by applicants who fail to meet even the basic FCC filing requirements.

The Commission's proposed rule appendix (Appendix B) does not set out an affirmative rule establishing the right to construct at one's own risk, and the duty to provide prior notification. Motorola urges the Commission to include such an express rule in Part 25. Otherwise, the Commission may be faced with future applicants who could claim insufficient notice of an undocumented construction "policy."

B. Waiver for Earth Stations

Motorola urges the Commission to extend a similar 319(d) waiver policy for the construction of MSS or FSS earth station complexes that serve as control points and/or gateways for these systems. The Commission has already eliminated the pre-construction authorization provision for certain types of earth stations.[6/] The planning and construction of earth station facilities may be equally time consuming and costly. Allowing applicants the option to begin construction, again at their own risk, would be a further means of ensuring the prompt initiation of new services to the public.

[5/] "With respect to any other station or class of stations the Commission shall not waive such [permit for construction] requirement unless the Commission determines that the public interest, convenience and necessity would be served by such a waiver." 47 U.S.C. § 319(d).

[6/] Amendment of Part 25 of the Rules and Regulations to Reduce Alien Carrier Interference Between Fixed-Satellites at Reduced Orbital Spacing and to Revise the Application Processing Procedures for Satellite Communications Services, First Report and Order, 6 FCC Rcd 2806 (1991).

C. The Commission Should Liberalize Its Experimental/Developmental Policies for Satellites

The Commission should also consider eliminating or relaxing its experimental satellite licensing policies to the extent they inhibit experimentation with in-orbit satellites.[7/] In its 1992 Policy Statement, the Commission voiced concern that the grant of an experimental license would "create an expectation that sizable investments in an experiment necessitate or mandate any particular course of action by the Commission."[8/] The Commission's concern regarding experimental satellite licenses is no different than the concern it has now tentatively rejected in this proceeding. Applicants for experimental satellite licenses should, at a minimum, have the option of starting construction of the facilities needed to complete their experiments upon submitting an experimental license application to the Commission.[9/]

Motorola agrees with the Commission that such grants should be handled by the Office of Engineering and Technology ("OET"). However, the Commission's proposal to eliminate developmental authority for satellites is at best premature.[10/] Developmental authority goes beyond theoretical research to operational and service-oriented tests. Developmental grants are issued under the authority of the staff responsible for permanent licensing of a radio service, not OET. Therefore, the Bureau staff may be better-suited to consider the particular needs of the radio service.[11/]

7/ Policy Statement on Experimental Satellite Applications, 7 FCC Rcd 4586 (1992).

8/ Id.

9/ For the same reasons, the Commission should consider modifying the Policy Statement's grant guidelines to permit full-scale in-orbit experimental programs at the licensee's own financial risk.

10/ NPRM at ¶ 31.

11/ The Commission now maintains rule provisions allowing for developmental

(continued ...)

II. THE COMMISSION'S PROPOSAL TO SIMPLIFY THE FINANCIAL SHOWING MUST BE LINKED TO ITS FIRM ENFORCEMENT OF THE UNDERLYING QUALIFICATION STANDARD

Motorola supports the Commission's tentative decision to decrease the amount and type of financial data it requires of satellite applicants.[12/] Applicants should not be required to submit data on investment, operating costs and expected revenues that are not considered when determining an applicant's financial qualifications. In any event, the Commission must ensure that financially unqualified applicants will not tie up valuable spectrum The Commission must strictly enforce the underlying financial standards for satellite applicants irrespective of the information it requires in an application

Motorola also supports the elimination of other unnecessary information requirements, but here too the Commission must be sure that the lack of this information does not promote the filing of speculative applications. Clearly, information concerning the number and distribution of earth stations, access to the system, demand for services and entities to be served is not required to determine whether to grant or deny a satellite system application. Most, if not all of this information is more appropriately addressed in the context of rulemaking proceedings for a new service or offering.

11/ (... continued)
authority for almost all of its wireless services. See, e.g., § § 21.400 (domestic public fixed radio; 22.401 (public mobile services); 25.300 (international fixed public radio communications); 80.33 (safety and special radio services, maritime); 87.37 (safety and special radio services, aviation); Part 90 (various private land mobile services); 94.151 (private operational fixed microwave service)

12/ NPRM at ¶ 9.

III. THE COMMISSION SHOULD STREAMLINE ITS APPLICATION PROCEDURES FOR SATELLITE SPACE STATIONS AND EARTH STATIONS

To date, the FCC has taken a piecemeal approach to establishing information requirements for space station applications. For example, applicants for new satellite systems must still meet the requirements of Appendix B from a 1983 Order and compare those requirements against Part 25 of the Rules. Motorola urges the Commission to go beyond the first steps it has taken in this proceeding to alleviate this needless confusion and paperwork by consolidating all of these requirements in one form and/or set of rules.

Motorola supports the elimination of filing separate applications for each space station.[13/] It is no longer necessary for the Commission to review a separate application for scores or even hundreds of technically identical satellites that are part of the same system or constellation. It has been Motorola's experience with LEO applications that this information is repetitive and unnecessary. One consolidated system proposal containing all common information should be sufficient for the Commission to evaluate the qualifications of an applicant.

The Commission's creation of a generic Form 312 is also a welcome improvement. Applicants would be better served, however, if Form 312 were amended to do away with the need to file "narrative" applications. Motorola urges the Commission to modify its proposed Form 312 to include all of the information needed for space station applications so that the proper completion of this form represents a minimally acceptable application.[14/] As Motorola understands it, the Commission's current proposal only alleviates the need to file a separate Form 430 when submitting

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13/ NPRM at ¶ 11.

14/ This does not preclude a requirement for exhibits or attachments to Form 312 when necessary to provide full information about a proposed satellite system.

requests for new earth stations. Motorola believes that Form 312 should also be used for all satellite space station applications.[15/]

In a related area, Motorola strongly supports the Commission's proposal to eliminate the detailed international coordination requirements in its Rules.[16/] Appendix 28 of the ITU Radio Regulations should be the sole source of guidance as to the coordination process for earth stations and space stations. Maintaining a parallel set of Commission coordination rules is confusing, and as the Commission correctly notes, its Rules often lag behind changes made to Appendix 28. The Commission need do no more than reference the need to meet the current requirements of Appendix 28 in its Rules and make Appendix 28 available to the public.

IV. THE COMMISSION SHOULD CLARIFY THAT CUT-OFF PERIODS BEGIN ONLY UPON SPECIFIC NOTICE

Motorola supports the FCC's tentative decision to clarify that satellite cut-off periods will only begin upon an explicit order of the Commission or its staff. This change will eliminate uncertainty and needless work by potential applicants or competitors. Particularly in the satellite industry, where preparing comments, petitions to deny or competing applications can be complex and quite expensive, the public will be better served by a cut-off process that begins only upon the FCC's explicit direction.

Motorola urges the Commission to clarify in this proceeding that pending satellite applicants will not routinely be subjected to more than one cut-off period wherein competing applications or petitions may be filed. Motorola is concerned that the original purpose of the cut-off rules -- to establish a means of creating finality in the license assignment process and preclude the endless submission of potentially

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15/ If the Commission does amend Form 312 for use by all satellite applicants, Motorola suggests that the amended rules reflect the fact that this form replaces all other information requirements.

16/ NPRM at ¶ 32.

mutually exclusive applications -- would be lost if the Commission does not foreclose the potential of multiple cut-off periods. The Commission recently suggested the possible use of multiple cut-off periods in the context of its digital audio radio service (DARS) rulemaking.[17/] Such a procedure would promote the submission of additional applications long after the filing of the original DARS applicants. The Commission should not adopt a process that artificially stimulates mutually exclusive situations. Multiple cut-offs -- particularly those that would be spread over several years -- are unfair to satellite applicants who make substantial investments of time and money developing new satellite services in new or under-utilized frequency bands, and are inconsistent with the Commission's limited auction authority.[18/]

V. MOTOROLA SUPPORTS THE END OF PRIOR AUTHORIZATION FOR "MINOR" EARTH STATION AND SATELLITE MODIFICATIONS

The Commission's proposal to eliminate the need to seek prior authority before making "minor" changes to earth stations is a sound one.[19/] Requesting prior authority for changes that, by definition, have no impact on other operators is a needless waste of time. The Commission should, however, consider extending some version of its definition of "minor" modifications to space stations as well as permit operators to proceed with changes in construction or operation of these stations without prior Commission authority.

17/ Establishment of Rules and Policies for the Digital Audio Radio Satellite Service in the 2310-2360 MHz Frequency Band, Notice of Proposed Rulemaking, IB Docket No. 95-91, GEN Docket No.90-357, FCC 95-229, (released June 15, 1995), ¶ 33-37.

18/ See 47 U.S.C. § 309(j).

19/ NPRM at 23.

VI. MOTOROLA SUPPORTS THE ELIMINATION OF BANDWIDTH LIMITATIONS ON EARTH STATIONS WITH SOME CONDITIONS

The new generation of Ka-band FSS satellite applications now before the Commission will require the use of broadband earth stations in order to provide viable operations. Motorola supports the Commission's proposal to eliminate the bandwidth requirement on earth stations with some conditions. Motorola is particularly concerned that the Commission is proposing to eliminate the narrow bandwidth limitations for VSATs without an adequate definition of what a VSAT is and the limits on its use. Without a clearer understanding of what constitutes a VSAT and in what bands they will operate, it is difficult for Motorola to support this proposal.[20/] Moreover, it is not clear that there is a demonstrated need to extend VSAT bandwidths at this time. The Commission should move cautiously on this aspect of its proposal.

As Motorola has indicated to the Commission in the 28 GHz rulemaking, MSS feeder links at 29.25-29.50 GHz cannot be shared with GSO FSS systems operating with an unrestricted number of VSATs.[21/] Under the Commission's proposal, unlimited broadband VSAT operations are likely to exacerbate an already difficult sharing situation. Motorola could support this proposal if the Commission clarifies that VSAT operations will be limited to established VSAT bands or that broadband VSAT operations will be limited outside of those bands designated for MSS feeder links.

VII. MOTOROLA URGES THE COMMISSION TO CONSIDER ADDITIONAL TECHNICAL AMENDMENTS TO PART 25

Motorola believes that the Commission should consider some minor changes to its Part 25 Rules that deal with the technical operation of satellites. These changes would better reflect the operational differences between LEO and GSO

20/ The Commission's rules are silent as to the definition of a VSAT.

21/ Joint Comments of Motorola Satellite Communications and Iridium in CC Docket No. 92-297 at 11 (Sept. 7, 1995).

satellite systems. If adopted, these rule changes would eliminate much of the uncertainty that NGSO operators now face in designing their systems.

A. The Commission Should Adopt Different Power Control Limits for Non-Geostationary Orbit Satellites

Motorola proposes an amendment to the power limit of Section 25.204(e) to differentiate between the requirements of GSO and NGSO space stations.[22/] The current power limit is designed as protection for space stations at 2° spacing in the geostationary arc. It is reasonable and necessary to control excess power due to attenuation in the geostationary arc. GSO space stations are at known positions relative to the transmitting earth station and are not being actively tracked. It is also necessary to control the E.I.R.P. levels to 1dB with space stations at 2° spacing in the arc to provide sufficient protection to adjacent space stations.

A power limit is also necessary for transmissions above 10 GHz to space stations in low earth orbit, but the protection and tracking requirements of a LEO space station necessitate a different limit. Interference between LEO satellites is infrequent and short in duration because of the dynamics of their orbits relative to each other and relative to the transmitting earth station. The same can be said of the interference between a LEO and a GSO satellite, with the additional free space loss between LEO and GSO satellites more than compensating for the stationary nature of the GSO space station.

Therefore, Motorola urges the Commission to adopt a change to Section 25.204(e) so that the power limit for NGSO earth stations transmitting to space stations below 2000 km. may exceed the specified uplink E.I R.P. in the station authorization

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22/ 47 C.F.R. § 25.204(e)

under conditions of uplink fading due to precipitation by an amount not to exceed an average of 3 dB above the actual amount of monitored excess attenuation.[23/]

B. The Commission Should Clarify Its Emissions Mask Limits

Motorola urges the Commission to adopt a clarifying amendment to the spectral emissions limits in Section 25.202(f) of the Rules.[24/] The clarification should account for various modulation techniques, multiple access techniques (such as CDMA, TDMA, and FDMA), multiple carrier systems, varying carrier bandwidths and systems employing power control to overcome attenuation due to atmospherics. The existing rules were adopted at a time when only analog transmissions were the norm. With the growing use of digital systems, adjustments must be made to the rules to protect adjacent systems from harmful interference

C. The Commission Should Clarify that its Antenna Performance Rules Apply Only to GSO Operations

The Commission's antenna performance standards and technical

[23/] Under Motorola's proposed amendment, Section 25.204(e) would read as follows:

For operations at frequencies above 10 GHz, earth station operators may exceed the uplink e.i.r.p. and e.i.r.p. density limits specified in the station authorization under the conditions of uplink fading due to precipitation by an amount not to exceed 1 dB above the actual amount of monitored excess attenuation over clear sky propagation conditions. Earth station operators transmitting to space stations in a low earth orbit (below 2000 km.) may exceed the uplink e.i.r.p. and e.i.r.p. density limits specified in the station authorization under the conditions of uplink fading due to precipitation by an amount not to exceed an average of 3 dB above the actual amount of monitored excess attenuation over clear sky propagation conditions. The e.i.r.p. levels shall be returned to normal as soon as the attenuating weather pattern subsides. The maximum power level for power control purposes shall be coordinated between and among adjacent satellite operators. (Suggested additions to the existing rule are underlined).

[24/] See 47 C.F.R. § 25.202(f)(1)(2) and (3).

requirements are meant to apply to earth station antennas used within GSO systems.[25] For example, the use of linear polarization is appropriate for GSO satellites and is very difficult to use in NGSO systems. For satellites in NGSO, circular polarization is more useful and the reuse of polarization itself is of less value since the satellites are not in fixed positions relative to each other. Nor is the existing earth terminal antenna sidelobe mask in the Rules appropriate for LEO MSS systems. This mask was developed for use by fixed satellite earth stations operating with communication satellites in the geostationary orbit. The proper mask for NGSO earth stations has yet to be developed.

Motorola suggests that the Commission clarify that the existing standards and requirements do not apply to earth stations used in an NGSO environment. Motorola further urges the Commission to determine what performance standards and requirements should apply to NGSO earth station antennas.

VIII. CONCLUSION

For the most part, Motorola supports the Commission's first steps at streamlining its satellite rules. The Commission must ensure, however, that its amendments do not result in more speculative applications from under-financed entities. The Commission's satellite processing rules must remain consistent with one of its fundamental goals: to bring new satellite services to the public as rapidly and efficiently as possible. The Commission should also consider changes and clarifications to its technical rules that reflect the new reality of a satellite industry that contains NGSO MSS providers. Motorola looks forward to reviewing and commenting upon the suggestions made by others in response to the Commission's proposals.

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[25] See 47 C.F.R. § § 25.209, 25.132, and 25.210.

Respectfully submitted,

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Dated: October 4, 1995

CERTIFICATE OF SERVICE

I, Colleen Sechrest, hereby certify that copies of the foregoing Comments of Motorola Satellite Communications, Inc. were served by hand delivery, this 4th day of October, 1995, on the following persons:

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